

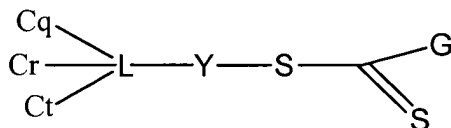
This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claims 1-16. (Canceled)

17. (Currently Amended) A method of preparing a sensor for detecting a biological molecule in an aqueous sample, the method comprising:

bonding an iniferter initiator to a substrate surface at one or more points to form a derivatized surface, said surface-bound iniferter initiator ~~comprising an initiator-control agent adduct~~ having the formula:

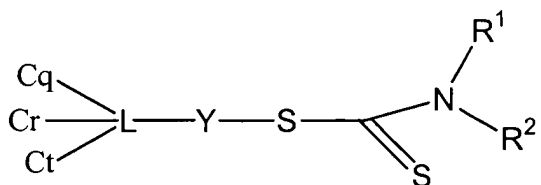


wherein C is a moiety on the surface of the substrate; L is a linker group capable of bonding to at least one C moiety; q, r and t are independently 0 or 1, provided the sum of q + r + t is at least 1; Y is a residue capable of initiating free radical polymerization upon ~~UV-initiated~~ homolytic cleavage of the Y-S bond; S is sulfur; and, G is a nitrogen or an oxygen heteroatom;

contacting said derivatized surface with a composition comprising a water-soluble or water-dispersible free radically polymerizable monomer mixture, ~~the mixture containing an acrylamide-based monomer and at least 1 other monomer~~, under reaction conditions to form bound polymer chains comprising a water-dispersible segment having a weight average molecular weight of at least about 1000 grams per mole, wherein (i) the mixture comprises a monomer that has one or more functionalized sites thereon for reaction with a probe selective for the biological molecule and a monomer that does not have a functionalized site for reaction with said probe, and (ii) the mixture comprises an acrylamide-based monomer and at least 1 other monomer ~~(i) at least one of said monomers has one or more functionalized sites thereon for reaction with a probe selective for the biological molecule, and (ii) at least one of said monomers does not have a functionalized site for reaction with said probe~~; and

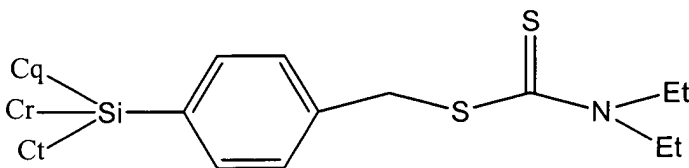
bonding the probe to the bound polymer chains through the functionalized sites.

18. (Currently Amended) The method according to claim 17 wherein the surface bound iniferter initiator ~~comprises an initiator-control agent adduct having~~ has the formula:



wherein N is nitrogen, and R<sup>1</sup> and R<sup>2</sup> are independently selected from hydrocarbyl and substituted hydrocarbyl.

19. (Currently Amended) The method according to claim 18 wherein said surface bound iniferter initiator ~~comprises an initiator-control agent adduct having~~ has the formula:



wherein Et is ethyl.

20. (Original) The method according to claim 19 wherein C is derived from a hydroxyl group.

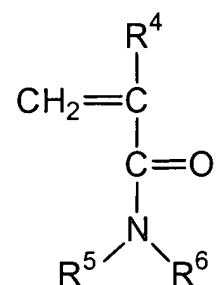
21. (Original) The method according to claim 19 wherein q = 1, r = 1 and t = 0.

22. (Original) The method according to claim 19 wherein q = 1, r = 1 and t = 1.

23. (Currently Amended) The method according to claim 17 further comprising bonding spacer molecules ~~bound~~ to said substrate surface at one or more points to form the derivatized surface, said one or more points being different from the points at which said bound polymer chains are ~~bound~~ formed to space said bound polymer

chains apart from each other, wherein the ratio of polymer chains to the sum of polymer chains and spacer molecules is about 0.75:1.

24. (Original) The method according to claim 17 wherein the acrylamide-based monomer has the formula:



wherein  $\text{R}^4$  is H or an alkyl group,  $\text{R}^5$  is methyl and  $\text{R}^6$  is methyl.

25. (Original) The method according to claim 24 wherein the monomer is N,N-dimethylacrylamide.

26. (Previously Presented) The method according to claim 17 further comprising separating unbound polymer after said derivatized surface is contacted with a composition comprising the monomer mixture to form polymer chains.

27. (Currently Amended) The method according to claim 26 wherein the monomer mixture additionally ~~contains~~ comprises an unbound iniferter initiator.

28. (Canceled)

29. (Currently Amended) The method according to claim 17 wherein the monomer mixture ~~contains~~ comprises about 10% to about 90% of the monomer having said functionalized sites for reaction with said probe, based on the total mass of monomer in said mixture.

30. (Currently Amended) The method according to claim 17 wherein the monomer mixture ~~contains~~ comprises about 15% to about 50% of the monomer having said functionalized sites for reaction with said probe, based on the total mass of monomer in said mixture.

31. (Currently Amended) The method according to claim 17 wherein the one or more functionalized sites on said functionalized monomer are in their active state for reaction with said probe.